



June 28, 2016

DRAFT

Mr. Eric Kemmer  
City of Kalamazoo  
Economic Development and Planning  
241 W. South Street  
Kalamazoo, MI 49007

**RE: Proposed Scope of Work  
Additional Remedial Investigation  
Panelyte Property, Kalamazoo, Kalamazoo County, Michigan**

Dear Eric:

Fleis & VandenBrink (F&V) appreciates the opportunity to submit this Scope of Services and Fee estimate to you for the above referenced work. Based on our conversation with you and the project stakeholders, the following outlines our understanding of the project and Scope of Services.

#### STATEMENT OF UNDERSTANDING

It is our understanding that you are requesting F&V complete this work to assist in the continued evaluation of the Panelyte Property (Property). The data generated during this investigation will be utilized by all project stakeholders. The City of Kalamazoo will utilize the data to assist in environmental due diligence and environmental due care evaluations to support their potential acquisition of all, or portions of, the Property. If a Quality Assurance Project Plan (QAPP) and Field Sampling Plan (FSP) are required for this work, the City of Kalamazoo understands that the QAPP and FSP will be prepared by others.

#### SCOPE OF SERVICES

F&V proposes to prepare a potential Scope of Work for an Additional Remedial Investigation at the Property. The purpose of the investigation is to further evaluate identified data gaps and evaluate the current environmental conditions at the Property. A Site Location Map is provided as Figure 1.

#### BACKGROUND

The Site was used for papermaking activities from the late 1890s until 1969 when it was sold to Reliance Universal/Reliance Panelyte which manufactured Panelyte, a laminated surfacing material. The Site was used for Panelyte manufacturing until the mid-1980s when all operations ceased. PCB-containing electrical transformers, fuel oil, varnish and solvents had been historically used on the Site. Chemical spills and releases related to the former industrial operations were reported on the site. The State of Michigan demolished the Site buildings and conducted limited remedial actions between 1986 and 2006.

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Numerous environmental investigations have been conducted at the Site, including:

- 1997 Technical Memorandum 7, Allied Paper, Inc., OU, BBL
- 2002 Brownfield Restoration Project Activities, Malcolm Pirnie
- 2004 Limited Remedial Investigation, Landmark
- 2006 Operable Unit Remedial Investigation Report, Camp Dresser McKee
- 2010 Baseline Environmental Assessment, FTCH

F&V conducted an Existing Conditions Analysis (draft) of the Property in May 2016 and is summarized as follows.

### **Former Building Area**

This portion of the Site was the former location of the Site buildings and improvements and is the area that has the most potential to be redeveloped in the future. The majority of the Site buildings and improvements have been demolished. The concrete slab of the main building was contaminated with PCBs and was removed and disposed offsite. A few remnant improvements such as underground vaults, rail lines, and fencing remain. Portions of the concrete building foundations were crushed onsite during demolition activities and used to backfill the building excavations with the additional crushed materials spread over portions of the Site. Portions of the visible crushed concrete materials on the Site surface are very coarse (3-4 inches). Not all building foundations and concrete slabs were removed. The main building foundation was reported to be very massive and was removed to approximately 5 feet below grade. It was reported that several of the smaller building concrete slabs were cracked and left in place. It is likely that the building foundations of these building remain also. The locations of the buried building foundations and slabs are shown on Figure 2.

Portions of this area of the Site appear to have been historically low-lying and were filled to allow development, likely during the paper-making operations at the Site. Based on the boring logs from the different environmental investigations, the backfill included waste materials such as coal ash/slag, brick, rubble, etc. The complete nature and extent of the fill materials has not been documented. Over 10 feet of fill materials were reported in some of the boring logs. The fill materials blend with the Panelyte Dump materials to the south. The estimated locations of the fill materials are shown on Figure 2.

An “Unidentified Object” was reported as being located to the southeast of the former main building (shown on Figure 2). This object was reported to be a pipe or possibly an underground storage tank. It is not known if any further investigations were conducted to determine what the object was and if it is still present at the Site.

Soils in the Former Building Area are documented to be contaminated from the former industrial operations and historic landfilling. Metals and semi-volatile organic compounds (SVOCs) are present above MDEQ Part 201 Generic Residential Cleanup Criteria (GRCC) including Direct Contact (DCC), Drinking Water Protection (DWPC) and Groundwater-Surface Water Interface Protection (GSIPC). Arsenic is documented to be present at concentrations exceeding MDEQ Part 201 Generic Non-Residential Cleanup Criteria (GNRCC) – Direct Contact values. Polychlorinated biphenyls (PCBs) were documented to be present in soils beneath the primary building at concentrations exceeding the Toxic Substance Control Act (TSCA) threshold. The known PCB contaminated soils were over-excavated and disposed offsite during State-funded Site remediation activities. Complete verification of soil remediation sampling and analysis does not appear to have been conducted to verify that all PCB contaminated soils were removed. The potential exists that PCB contaminated soils may be present in the vicinity of the former primary building.

Groundwater in the Former Building Area is also documented to be contaminated. Metals, SVOCs and volatile organic compounds (VOCs) at concentrations above MDEQ Part 201 GRCC and GNRCC, including Drinking Water Criteria (DWC) and Groundwater-Surface Water Interface Criteria (GSIC).

## Panelyte Dump

The Panelyte Dump is located south of the Former Building Area and encompasses approximately 4 acres of the central portion of the Site. It is likely that this area of the Site was historically low-lying and was likely used as an industrial dump during the paper-making activities and the Panelyte operations. Visual observations of surficial materials include 55-gallon drums, other chemical containers, Panelyte material, paper rolls, concrete, coal slag and industrial trash. This area also appears to have been used for illegal dumping of household trash and other items, such as two vehicles, before the Site was fenced.

Numerous borings were installed in the Panelyte Dump Area during the 2004 Landmark investigation to assess the extent of waste materials and the conditions of soil and groundwater. The Landmark investigation data indicates that up to 16 feet of waste material/fill is present in the Panelyte Dump. The estimated extent and thickness of the Panelyte Dump is shown on Figure 3. The Panelyte Marsh is present at the southern end of the Panelyte Dump area. It is likely that waste materials are present beneath all, or portions of, the Panelyte Marsh.

The boring logs for Site investigations also indicate that a peat/marl unit underlies portions of the waste and fill materials at the Site. The peat/marl unit likely represents the historical surface of the low-lying area before filling and dumping activities were conducted. The estimated extent and thickness of the peat/marl unit is shown on Figure 4.

Soils in the Panelyte Dump are documented to be contaminated with Metals, SVOCs and VOCs at concentrations exceeding MDEQ Part 201 GRCC DWPC, GSIPC, and DCC. Carbon tetrachloride was detected in one soil sample at a concentration exceeding MDEQ Part 201 GRCC – Soil Volatilization to Indoor Air Criteria.

Groundwater beneath the Panelyte Dump is impacted primarily by tetrachloroethylene (PCE) at concentrations exceeding MDEQ Part 201 GRCC and GNRCC DWC. The source of the PCE is not known, but it is likely from the Panelyte Dump.

## Southern Area

Waste materials from the adjacent Allied Paper Site – Western Disposal Area are located on the southern portion of the Panelyte Property – shown as the “OU-1 Encroachment Area” on Figure 2. The general dividing line between the Western Disposal Area wastes and the Panelyte Dump wastes is the Panelyte Marsh. It is likely that Western Disposal Area and Panelyte Dump Wastes are co-mingled beneath the Panelyte Marsh.

Soils in the Southern Area are documented to be contaminated with Metals at concentrations exceeding MDEQ Part 201 GRCC DWPC, GSIPC, and DCC. PCBs were detected in one soil sample at a concentration exceeding MDEQ Part 201 GRCC DCC.

Groundwater beneath the Southern Area is impacted primarily by PCE and Metals at concentrations exceeding MDEQ Part 201 GRCC and GNRCC DWC.

## Surface Water

Surface water samples were collected from the Panelyte Marsh in October 2009 during the Phase II Environmental Site Assessment conducted by Fishbeck, Thompson, Carr & Huber, Inc. (FTC&H). The Panelyte Marsh surface water samples contained barium, cadmium, chromium, copper, lead, manganese, mercury, silver, vanadium and zinc at concentrations that exceeded Part 201 Groundwater Surface Water Interface Criteria (GSIC). Surface water samples from were also collected by FTC&H from venting groundwater that was flowing into the drainage ditch located in the central portion of the Site. Silver was detected at concentrations that exceed Part 201 GSIC.

Shallow groundwater in the vicinity of the southern portion of the Former Building Area (fill area) and the Panelyte Dump is documented to have contamination at concentrations exceeding Part 201 GSIC. It is likely that this groundwater vents into Portage Creek.

## Data Gaps

Based on a limited review of the existing data and assumptions of potential future use scenarios, environmental Data Gaps include:

- Evaluation of PCBs in soils in the vicinity of the former primary building
- Investigation of the Unknown Object
- Evaluation of visible drums and containers in the Panelyte Dump
- Further environmental characterization of fill material in areas of potential redevelopment
- Determine if buried drums or other chemical containers are present in the Panelyte Dump that are ongoing sources of contamination
- Surface water sampling and analysis to get current data
- Groundwater sampling and analysis to get current data
- Further delineation of the horizontal and vertical extent of the materials in the Panelyte Dump
- Vapor Intrusion Screening/Evaluation

## RECOMMENDED SCOPE OF WORK

F&V recommends that test borings be installed in Areas of Concern to evaluate current subsurface conditions. The test borings are proposed to be completed using a track-mounted GeoProbe 6620DT, outfitted with a dual tube sampling system using direct push technology. The test borings will be advanced to a maximum depth of 20 feet below ground surface (ft bgs) or until refusal. The recovered soils will be logged using USCS classification and sampled following EPA and MDEQ sampling procedures. The soils will be visually observed and field screened with a photoionization detector (PID). Soil samples will be collected from the test borings from intervals where field screening evidence indicates the greatest potential for contamination. The proposed test boring locations are depicted on Figure 5.

Groundwater samples will be collected from a subset of the test boring locations. Groundwater sampling locations will be selected in the field and based on field screening data, and temporary wells will be installed in selected borings. Soil and groundwater samples should be collected for laboratory analysis. Sampling locations will be selected in the field and based on field screening evidence and historical data. In-situ groundwater samples will be collected from discreet intervals using the GeoProbe equipped with a 2.50-foot, 0.007-inch mill slotted screen and peristaltic pump. Groundwater samples will be collected following MDEQ low flow sampling guidance. The generated purge water will be temporarily containerized and then placed on the ground at the boring location after sampling was completed.

Soil cuttings will be mixed with bentonite hole plug and used to plug and abandon the test boring apertures.

## Former Building Area

### Former Primary Building Area

- 6 test borings around the former building outline
- 6-12 soil samples
- 3-4 groundwater samples

### Fill Material Area

- 6 test borings
- Soil Piles
- 6-12 soil samples
- 3-4 groundwater samples – low flow

### Unknown Object

- Inspection and/or geophysical survey to locate
- Soil/groundwater sampling if warranted

**Panelyte Dump Area**

## Visible Drums and Chemical Containers

- Visual/PID Evaluation
- Soil sampling if warranted

## Extent of Landfill Materials/Buried Drum Evaluation

- Geophysical Investigation

## Current Soil and Groundwater Data

- 10 test borings
- 10 soil and 10 groundwater samples – low flow
- Visual evaluation for paper residuals

**Southern Area**

There appear to be several options for remedial efforts by the Allied Partners for the OU1 materials that have come to be located on the southern portion of the Panelyte property. If the Panelyte Marsh area is not included in the OU1 remediation, additional data from beneath the marsh will need to be collected.

**Surface Water Sampling**

- Collect 3 surface water samples from the Panelyte Marsh

**Groundwater Surface Water Interface Well Installation and Sampling**

- Install six (6) temporary wells between the Panelyte Dump/Southern Fill Area and Portage Creek
- 6 groundwater samples – low flow

**Sample Handling and Analysis**

Sample preservation should be used to prevent or retard the degradation or modification of chemical compounds during transit and storage prior to laboratory extraction and analysis. Sample preservatives should be based on the type of sample and required analyses and will include storing the samples on ice in an insulated cooler during the collection process. The samples should be submitted to an analytical laboratory for analysis.

It is recommended that the soil and groundwater samples be analyzed for Volatile Organic Compounds by Method 8260B plus scan (VOCs), polynuclear aromatic hydrocarbons (Method 8270C), Target Analyte List (TAL) Metals and polychlorinated biphenyl (PCBs). Suitable quality control samples should be collected, as required (duplicates, field blank, trip blank, equipment blank, etc.)

**Data Analysis and Reporting**

After the receipt of the analytical data reports, F&V will evaluate the data and prepare a report. The report will include a description of the investigative methods, a scaled site map illustrating sampling locations, boring logs, laboratory analytical data reports, and a comparison of the analytical data results to applicable Part 201 GRCC, findings and conclusions.

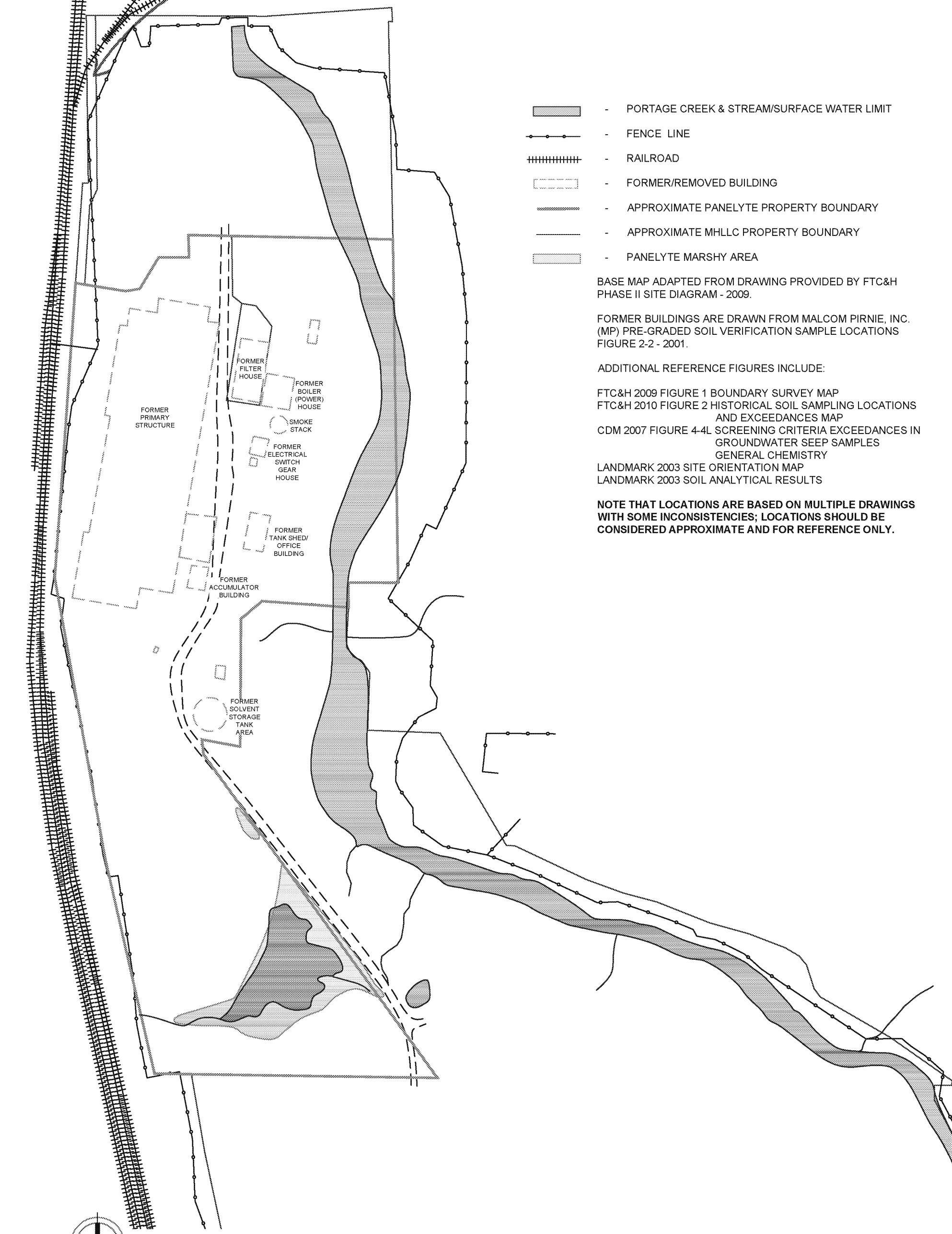
**Attachments:**

- Figure 1 Site Plan
- Figure 2 Subsurface Development Impediments
- Figure 3 Panelyte Dump Thickness Isopach
- Figure 4 Environmental Conditions
- Figure 5 Proposed Boring Locations

CHANGE ON ALL  
DRAWINGS

POTENTIAL  
EASEMENT TO  
PANELYTE PROPERTY

- HATCH ON MAP  
DIFFERENT  
COLOR



- PORTAGE CREEK & STREAM/SURFACE WATER LIMIT
- FENCE LINE
- RAILROAD
- FORMER/REMOVED BUILDING
- APPROXIMATE PANELYTE PROPERTY BOUNDARY
- APPROXIMATE MHLIC PROPERTY BOUNDARY
- PANELYTE MARSHY AREA

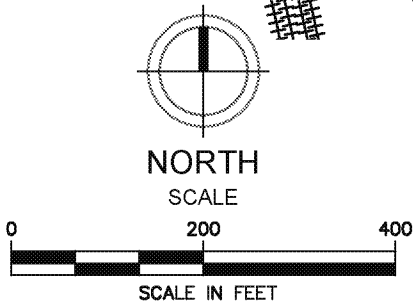
BASE MAP ADAPTED FROM DRAWING PROVIDED BY FTC&H  
PHASE II SITE DIAGRAM - 2009.

FORMER BUILDINGS ARE DRAWN FROM MALCOM PIRNIE, INC.  
(MP) PRE-GRADED SOIL VERIFICATION SAMPLE LOCATIONS  
FIGURE 2-2 - 2001.

ADDITIONAL REFERENCE FIGURES INCLUDE:

- FTC&H 2009 FIGURE 1 BOUNDARY SURVEY MAP
- FTC&H 2010 FIGURE 2 HISTORICAL SOIL SAMPLING LOCATIONS  
AND EXCEEDANCES MAP
- CDM 2007 FIGURE 4-4L SCREENING CRITERIA EXCEEDANCES IN  
GROUNDWATER SEEP SAMPLES  
GENERAL CHEMISTRY
- LANDMARK 2003 SITE ORIENTATION MAP
- LANDMARK 2003 SOIL ANALYTICAL RESULTS

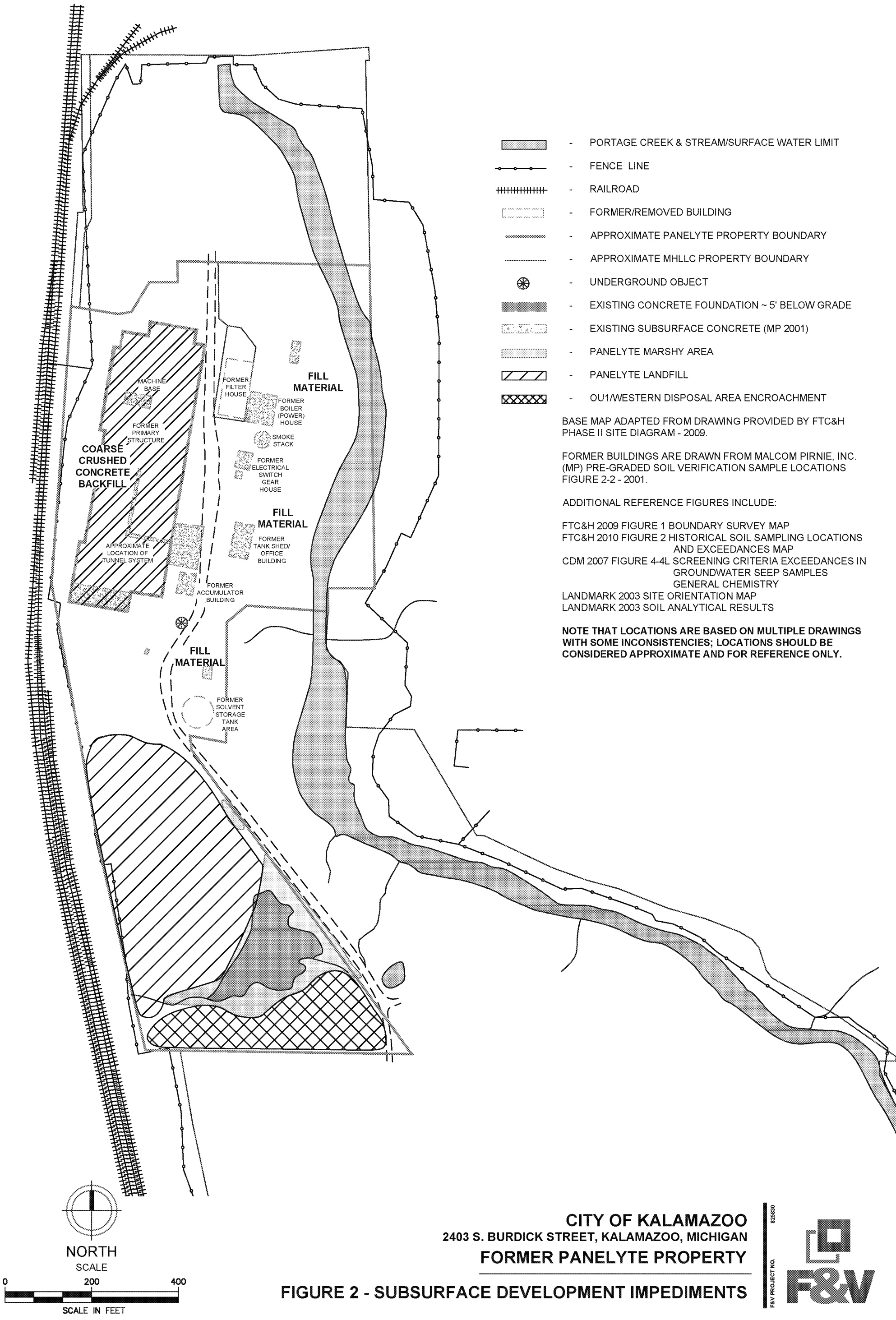
NOTE THAT LOCATIONS ARE BASED ON MULTIPLE DRAWINGS  
WITH SOME INCONSISTENCIES; LOCATIONS SHOULD BE  
CONSIDERED APPROXIMATE AND FOR REFERENCE ONLY.



CITY OF KALAMAZOO  
2403 S. BURDICK STREET, KALAMAZOO, MICHIGAN  
FORMER PANELYTE PROPERTY

FIGURE 1 - SITE PLAN







- PORTAGE CREEK & STREAM/SURFACE WATER LIMIT
- FENCE LINE
- RAILROAD
- FORMER/REMOVED BUILDING
- APPROXIMATE PANELYTE PROPERTY BOUNDARY
- FILL WASTE ISOPACH - *ESTIMATED DEPTH FROM SURFACE*
- SOIL BORING (LANDMARK 2003)
- GROUNDWATER SEEP SAMPLES (CDM 2007)
- GROUNDWATER SEEP SAMPLES EXCEEDANCE OF SCREENING CRITERIA (CDM 2007)

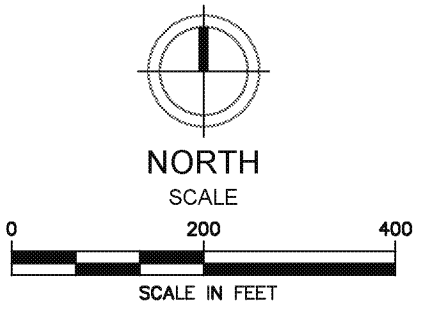
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FIGURE 3: PANELYTE DUMP ISOPACH THICKNESS

